

Remarks:

Applicant amends claims 1-4, 6-9, 12-13, 17 and 20. Applicant also amends the specification and drawing Figures 1A, 1B, 7A and 7B to correct minor informalities. By way of this amendment, claims 1-20 are pending. Reexamination and reconsideration of the application, as amended, are respectfully requested.

The applicant proposes to amend drawing Figures 1A, 1B, 7A and 7B by changing the reference numeral for the substrate from "2" to "1", as indicated in red ink on attached copies thereof. The specification (pages 6 and 7) is also amended consistent with the drawing changes. No new matter is introduced.

The Office Action notes that the present application claimed priority under 35 U.S.C. § 120 from an abandoned application. Attached as Exhibit 1 is a copy of the earlier filed petition to revive the parent application to this application so that copendency is established.

Applicant also mistakenly failed to amend the claims in the present application to account for the prosecution of the parent application.

The Examiner apparently rejected claims 3, 4, 8, 9, 12 and 13 because the claim language "zinc blend structured crystalline structure" is not discussed or referenced in the specification. In response, the applicant amends the specification to refer to and describe this well-known covalent crystalline structure. No new matter is introduced because the description of "zincblende crystalline structure" is contained in the original claims which are a part of the original disclosure, and because the referenced crystalline structure is understood by the ordinary worker in the field of semiconductor lasers. Applicant amends claims 3, 4, 8, 9, 12 and 13 to correct misspellings and grammatical errors. If applicant has not addressed the Examiner's claim rejection under 35 U.S.C. § 112, the applicant requests a more complete discussion of this rejection.

Appl. No. 10/076,698
Response Dated June 18, 2004
Reply to Office Action of December 19, 2003

Attorney Docket No. 81788.0216
Customer No. 26021

The Office Action rejects the claims over U.S. Patent No. 6,339,607 to Jiang, et al. (the Jiang patent). Applicant submits that, once the above-referenced petition to revive application Serial No. 09/328,149 is granted, the Jiang patent will not be prior art to the claims of this application.

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. Reexamination and reconsideration of the application, as amended, are requested.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Los Angeles, California telephone number (213) 337-6700 to discuss the steps necessary for placing the application in condition for allowance.

If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-1314.

Respectfully submitted,
HOGAN & HARTSON L.L.P.

Date: June 18, 2004

By: 

William H. Wright
Registration No. 36,312
Attorney for Applicant(s)

500 South Grand Avenue, Suite 1900
Los Angeles, California 90071
Phone: 213-337-6700
Fax: 213-337-6701

Amendments to the Specification (markup):

Replace two paragraphs on Page 6, lines 14-31 with the following text:

Fig. 1A is a perspective view schematically showing a surface emitting laser according to the first embodiment of the invention, and Fig. 1B is a cross-sectional view schematically showing its central part. The surface emitting laser shown here is an improved version VCSEL explained above with reference to Figs. 7A and 7B. That is, HR-DBRs (high-reflectivity distributed Bragg reflectors) 100 (lower) and 200 (upper) of a high reflectivity layer structure are provided on and under an active layer having a MQW (multiple-quantum well) structure on a substrate [2] 1 to make light from the active layer 3 resonate vertically. Laser light, thus obtained, is emitted externally from an opening of a top electrode 50. The semiconductor substrate 1 and the active layer 3 may be formed of semiconductors having a zincblende crystalline structure, such as GaAs, InP, or other suitable III-V semiconductor materials.

In the present invention, side surfaces of the active layer 3 are not normal to the active layer 3, but they are processed to slant in directions gradually increasing [their distance toward] in separation as they approach the substrate [2] 1. With these slanted side surfaces, it is ensured to prevent undesirable horizontal resonance and invite vertical resonance alone. These slanted surfaces can be made by processing using HBr-based wet etchant, for example.

Appl. No. 10/076,698
Response Dated June 18, 2004
Reply to Office Action of December 19, 2003

Attorney Docket No. 81788.0216
Customer No. 26021

Replace the paragraph on Page 6, line 36 to page 7, line 3 with the following text:

In the illustrated example, side surfaces of the active layer are processed to slant in directions gradually increasing [their distance toward] in separation as they approach the substrate [2] 1. However, they may be processed to the contrary, namely, to define slant surfaces gradually decreasing their [distance] separation toward the substrate.



Applicant: Junichi Kinoshita
Serial No.: 10/076,698
Amendment Dated: June 18, 2004
Docket No.: 81788.0216
Reply to Office Action dated December 19, 2003

Annotated Sheet Showing Changes

RECEIVED
JUN 30 2004
TECH CENTER 2800

1 / 7

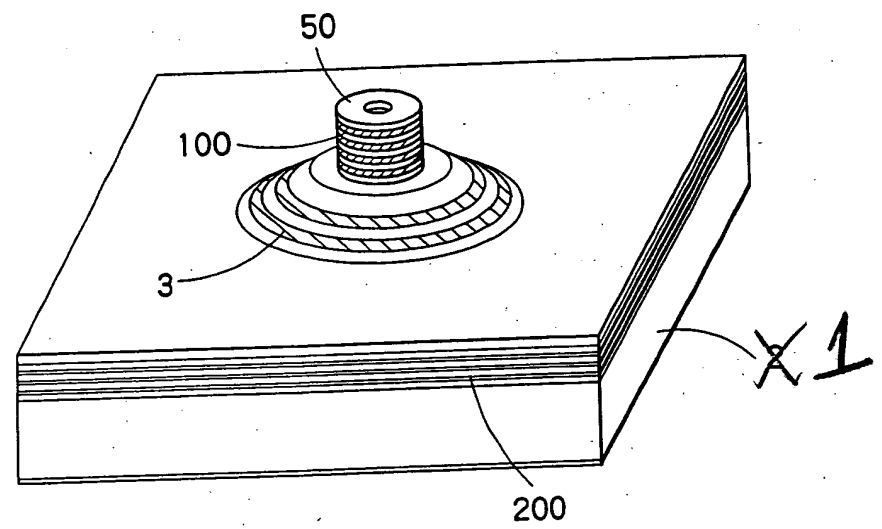
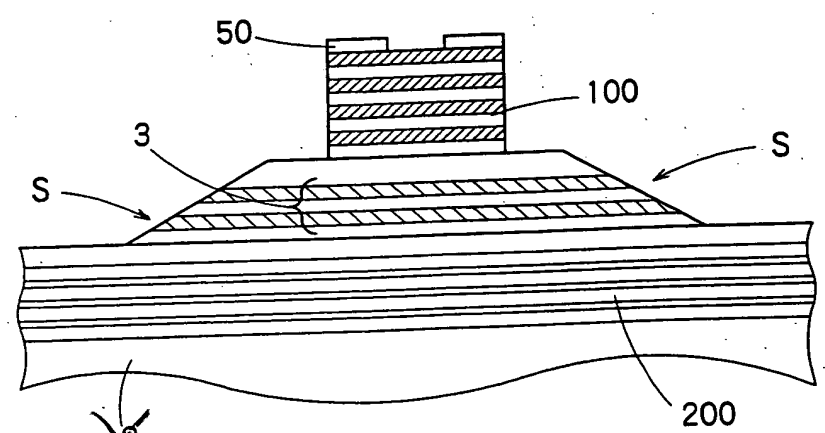
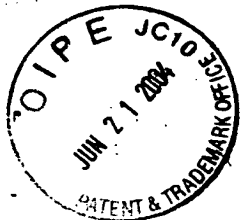


FIG. 1A



1

FIG. 1B



Applicant: Junichi Kinoshita
Serial No.: 10/076,698
Amendment Dated: June 18, 2004
Docket No.: 81788.0216
Reply to Office Action dated December 19, 2003

Annotated Sheet Showing Changes

6 / 7

RECEIVED

JUN 30 2004

TECH CENTER 2800

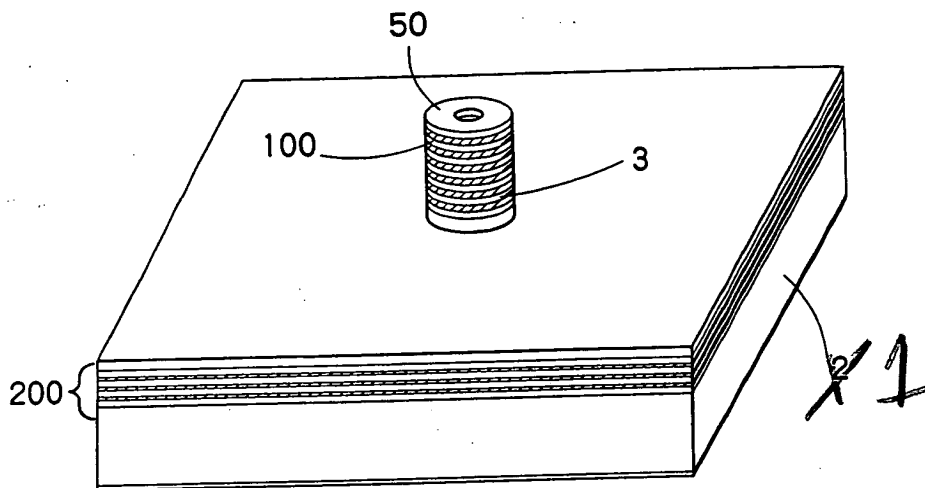


FIG. 7A

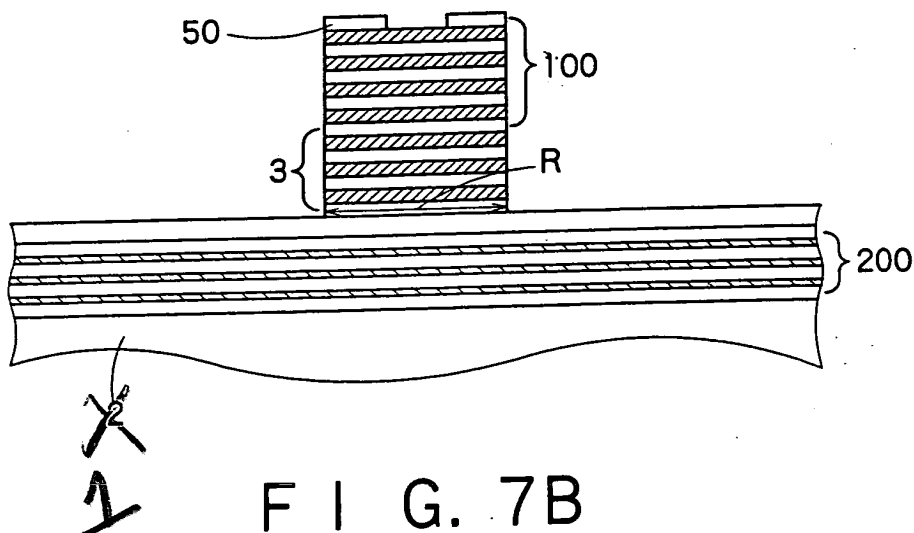


FIG. 7B